Grace Garlatti                                                                      7th Grade Math

July 19, 2010  
“One-Step Equations”  
  
Objective (s):  
  
Students will be able to solve one-step equations.    
  
Set Induction:  
The teacher will ask the class to write down their definitions of the word equation. The class will then discuss what an equation is and debate how they can be solved.   
  
Learning Activities:   
Instructional Time:   
The teacher will write a one-step equation (from attached worksheet) on the board and teach the students two rules:  
1.) The same operation must be performed to both sides of the equation.  
2.) The variable must be isolated.   
As a whole, the class will discuss what these rules mean and determine how they can state these rules in a way that is understandable to them.   
Many examples will be used.   
  
Independent Work:   
The students will be asked to restate the rules in their binders in a way that makes sense to them. There will also be many problems on the board (from attached worksheet) that they will be asked to solve. The teacher will travel around the room and clear up any misconceptions.   
  
Race Time!:  
The teacher will break the students up into two groups. The teacher will call two students to the board and give them an equation to solve. The student who solves the equation first will get a point for his or her team. The team with the most points at the end of two minutes will get a prize.   
  
Timeline:  
Set Induction:  10 minutes  
Instructional Time: 10 minutes  
Independent Work Time: 10 minutes  
Race Time!: 10 minutes  
Closure: 5 minutes  
Closure:  
The teacher will assign homework and ask the class if they have any questions.

Assessment:   
The teacher will observe student answers during class and collect their homework assignments. She will review their homework to better see where the students are struggling.  
  
Homework:  
The students will complete the “Equations!” worksheet.    
  
Materials:  
SmartBoard  
Pencils  
Paper

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
EQUATIONS!!!  
Solve the following one-step equations.   
1.) m – 17= -8  
  
2.) x – 255= 671  
  
3.) 36 + n= 75  
  
4.) -88 + z= 0  
  
5.) -87 + y= 19  
  
  
6.) 41 + k= 7   
  
  
7.) x + 14= 21  
  
  
Make up your own one-step equation and solve below.

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July 20, 2010  
“Two-Step Equations”  
  
Objective (s):  
  
Students will be able to solve two-step equations.  .   
  
Set Induction:  
The teacher will write a few one-step equations on the board to give the students a little more practice. The class will review these equations as a whole.  
  
Learning Activities:   
Instructional Time:   
The teacher will explain that solving a two-step equation is similar to solving a one-step equation except it will take two-steps to accomplish the two core rules of equation solving:  
1.) The same operation must be performed to both sides of the equation.  
2.) The variable must be isolated.  
Many examples (from attached sheet) will be used.   
White Boards:  
The teacher will give each student a white board and call out an equation for the class. The students will be given a minute to solve the equation and then they will reveal the answer to the teacher. A student with the correct answer will be called to the board to show the rest of the class how to correctly solve the equation.   
  
Creation Time:  
The students will be asked to create three of their own two-step equations. They will then exchange their equations with a partner and solve the equations.   
  
Timeline:  
Set Induction:  5 minutes  
Instructional Time: 15 minutes  
White Boards: 10 minutes  
Creation Time: 10 minutes  
Closure: 5 minutes  
  
Closure:  
The teacher will write an equation that requires two-steps and the combination of terms on the board and ask the students to solve it. This will challenge to students to think a little differently than they had been throughout the lesson, while still reminding them how to solve a two-step equation.   
  
Materials:  
Pencils  
Paper  
Chalk  
Chalkboard  
White Board  
Markers  
“Do the Two-Step!” Worksheet

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
“Do the Two-Step!”  
Solve the following two-step equations.   
1.) 4x – 17= 31  
  
2.) k/3 + 3= 8  
  
  
  
3.) 9n + 18= 36  
  
  
  
4.) 14= 5k -31  
  
  
  
5.) 15= m + 3  
  
  
  
6.) t/9 – 7= -5  
  
  
  
7.) 25- 13f= -14  
  
  
  
Make up your own two-step equation and solve below.

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Core Team 4 activity! See Steph’s plan!

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July 22, 2010  
“Reviewing One-Step and Two-Step Equations”  
  
Objective (s):  
The students will be able to solve one-step and two-step equations.   
  
Set Induction:  
The teacher will ask the class to create their own one-step and two-step equations. She will then ask the students to share their equations with the class by writing the equations on the board. Each student will guide the class through their two equations.    
  
Learning Activities:   
Computer Contest:   
The teacher will take the students to the computer lab to work with the following website, <http://www.xpmath.com/forums/arcade.php?do=play&gameid=64>. This website will generate one-step and two-step equations for the students to answer and keep count of the number of answers they get correct. The student who has the most answers correct at the end of 20 minutes (15 once we travel to the computer lab) will be awarded a prize.   
  
Scoring Time:   
The teacher will make her way around the room collecting each student’s score from the website. She will look at the scores and give a prize to the two students who got the highest number of equations correct.   
  
Timeline:  
Set Induction: 13 minutes   
Computer Game: 20 minutes  
Scoring Time: 6 minutes  
Closure 6 minutes  
  
Closure:  
The teacher will write a more challenging two-step equation on the board and have the students solve it. The class will then review this problem as a whole.   
  
Assessment:   
The teacher will observe the students while they are working on the computers. She will also look over their homework to track their progress. The teacher will be able to see how well certain students understand one-step and two-step equations by looking at the number of problems they solve corrects on the website; she will gage whether their skill level is appropriate given the time given and the difficulty level of the questions.   
  
Homework:  
The teacher will assign “Algebraic Practice Problems.”

Materials:  
Paper   
Pencils  
Computers  
Chalk  
Chalkboard

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July 19, 2010  
“Manipulation”  
        
Objective(s):   
  
The students will be able to manipulate equations to the form of y=mx+b.   
  
The students will be able to write equations in slope intercept form given one point and the slope.  
  
Set Induction:  
The teacher will put the equation y=mx+b on the board and ask the students if anyone has seen this equation before. If students have seen it before she will ask them what this equation is called and what the variables stand for. If they have not seen it before, she will give a brief summary of what each variable stands for and explain that they will talk about each term more in depth in the following days.   
  
Learning Activities:   
Video:  
The students will watch the “Slope Intercept Rap” (<http://www.youtube.com/watch?v=REjcPZeypVg>). This video explains why slope intercept form is used in an intriguing way. After the video is over the teacher will ask the students to list the things they learned about slope intercept form from the video.   
  
Class Work  
The teacher will write the equation 6x+4y=32 on the board. She will explain to the students that in order to get this equation into slope intercept form the must isolate the y variable. She will show the class how to manipulate this equation using the chalkboard. The class will then solve the equations 2x-6y=12 and 8x-2y=2 as a class.    
  
White Boards:   
The teacher will give each student a white board and have them write down equations she reads from <http://www.college-cram.com/study/algebra/graphs-and-lines/bottomless-worksheet-of-slope-intercept-formula/>. The students will be given time to figure out how to manipulate these equations into slope intercept form and then show the teacher their answers.   
  
Class Work:   
The teacher will give the class the point (9,9) with the slope of -3 and give them the opportunity to try to use that information to write an equation in slope intercept form. After the students have been given the chance to think critically she will model how to do this using the board. The class will also use the point (14, 8) with a slope of 12 and the point (5, -7) with a slope of 2 to form equations in slope intercept form.   
  
White Boards:   
The teacher will give each student a white board and have them write down the information she reads from <http://www.college-cram.com/study/algebra/graphs-and-lines/bottomless-worksheet-of-point-and-slope/> . The students will be given time to figure out how to write and equation in slope intercept form using a point and the slope and then show the teacher their answers.   
  
Timeline:  
Set Induction: 5 minutes  
Video: 7 minutes  
Class Work: 9 minutes  
White Boards: 5 minutes   
Class Work: 9 minutes  
White Boards: 5 minutes   
Closure: 5 minutes   
  
Closure:   
The teacher will ask the class what they believe slope actually is. She will explain that they will explore how to calculate slope on the following day.   
  
Assessment:   
The teacher will take note of student answers when they try to solve equations using the white boards.   
  
Homework:   
The teacher will assign the “Writing Linear Equations” worksheet.   
  
Materials:  
Chalk   
Chalkboard  
Pencils  
Paper  
<http://www.youtube.com/watch?v=REjcPZeypVg>  
<http://www.college-cram.com/study/algebra/graphs-and-lines/bottomless-worksheet-of-slope-intercept-formula/>  
<http://www.college-cram.com/study/algebra/graphs-and-lines/bottomless-worksheet-of-point-and-slope/>  
White Board  
Markers

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July 20, 2010  
“Slope”  
        
Objective(s):   
  
The students will be able to define slope.   
  
The students will be able be able to find the slope of a line from an equation.  
  
The students will be able to calculate the slope of a line using two points.   
  
Set Induction:  
The teacher will write slope=rise/run on the board and give the students a few minutes to think about what they means. The class will then discuss the meaning of that equation as a whole.   
  
Learning Activities:   
Slope from an Equation:  
The class will review manipulating equations into the form of y=mx+b, but this time they will be asked to clearly identify the slope once they have manipulated the equation. The class will discuss in dept what the slope of a line is.    
  
Slope from Two Points:  
The teacher will have the students watch the video <http://www.youtube.com/watch?v=EyBM0iqPI14> which teachers about the formula to find slope and applies it to real life situations. The class will then use the folmula y2-y1/x2-x1 to find the slopes of lines that contain the points (4,2) and (8,9) and (6, 12) and (15,16).   
  
Timeline:  
Set Induction: 7 minutes  
Slope from an Equation: 10 minutes  
Slope from Two Points: 18 minutes  
Closure: 10 minutes   
  
Closure:   
The teacher will break the class up into groups of 2 to 3 and ask them to brainstorm how slope can be applied to real life. She will give them the example of a basketball free throw in order to get them thinking. The class will then discuss their answers.   
  
Assessment:   
The teacher will observe students as they work in class.   
  
Homework:   
The teacher will assign the even problems from the “Finding Slope from an Equation” worksheet and the “Finding Slope from Two Points” worksheet.   
  
Materials:  
Chalk  
Chalkboard  
“Finding Slope from an Equation” Worksheet  
“Finding Slope from Two Points” Worksheet  
<http://www.youtube.com/watch?v=EyBM0iqPI14>

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July 21, 2010  
  
Core Team 4 activity! See Steph’s plan!

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July 22, 2010  
“Graphing and Intercepts”  
        
Objective(s):   
  
The students will be able to calculate slope by looking at the graph of a line.   
  
The students will be able to define x-intercept and y-intercept.   
  
The students will be able to graph lines using the slope and intercepts.   
  
Set Induction:  
The teacher will have a graph of a straight line up on the SmartBoard and ask the students to write down everything they know about the line. The class will then discuss the line in depth.   
  
Learning Activities:   
Slope from Graph:  
The teacher will explain to the students that they can find the slope of the line of the SmartBoard merely by counting the rise over run. She will demonstrate how to do this and then have the students work on the “Finding Slope from a Graph” worksheet. They will work with a partner to find the slope of the first five graphs on the worksheet. The class will then review that slope can be found in three ways: from an equation, from a formula, and from a graph.   
  
Intercepts:   
The teacher will explain that the x-intercept is the place in which the line crosses the x-axis; the y-coordinate in this case is always zero. The teacher will explain that the y-intercept is the place in which the line crosses the y-axis; the x-coordinate in this case is always zero. The teacher will give a few examples of this concept and discuss that the b in y-intercept form always represents the y-intercept.   
  
Graphing Lines:   
The class will be given an equation in y-intercept form (y=1/5x-2) and the teacher will give them 5 minutes to figure out how to graph this. She will explain to them that they have all the information they need as long as they remember how to find the slope and y-intercept using this worm. The teacher will then show the class how to graph this. They will work with partners on a few more graphing straight-line problem.

Timeline:  
Set Induction: 10 minutes  
Slope from Graph: 12 minutes  
Intercepts: 5 minutes  
Graphing Lines: 13 minutes   
Closure: 5 minutes   
  
Closure:   
The teacher will put a t-table on the board and have the students find the intercepts, slope, and graph the equation using this information.  
  
Assessment:       
The teacher will observe the students as they do their independent work. She will help any students who are in need of assistance.   
  
Homework:   
The students will complete the “Finding Slope from a Graph” worksheet and the “Graphing Lines” worksheet.   
  
Materials:  
SmartBoard  
Chalk  
Chalkboard  
“Finding Slope from a Graph” Worksheet  
“Graphing Lines” Worksheet

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July 23, 2010  
“y=mx+b: The Application and Game!”  
        
Objective(s):   
  
The students will be able to identify the slope of a line  
  
The students will be able to identify the intercepts of a line.  
  
Set Induction:  
The teacher will ask the students to make up an equation in slope intercept form. She will move her way around the room asking students what there slope and y-intercepts would be.  
  
Learning Activities:   
Practice Time:  
The teacher will give the students the worksheet (see attached) and ask them to solve three of the problems. She will also ask them to find the slope and intercepts of the given equation. If a student finishes quickly, she will have them continue working on the worksheet.   
  
Computer Game:  
The teacher will move the class to the computer lab and have them participate in the game <http://hotmath.com/hotmath_help/games/kp/kp_hotmath_sound.swf>. In this game, the students will be asked to name intercepts, slopes, and points at random in order to win the game.  
  
Timeline:  
Set Induction: 5 minutes  
Practice Time: 15 minutes   
Computer Game: 20 minutes   
Closure: 5 minutes   
  
Closure:   
The teacher will fire questions regarding slope an intercept at the students such as what is the slope in the equation y=9x+7, and have the students answer the questions as fast as possible.   
  
Assessment:   
The teacher will observe the students as they work and help students who are in need of assistance.

Homework:   
Friday! =)   
  
Materials:  
Worksheet  
Computers   
Pencils   
Paper  
<http://hotmath.com/hotmath_help/games/kp/kp_hotmath_sound.swf>

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July 23, 2010  
“Coordinate Planes”  
        
Objective(s):   
  
Students will be able to locate the x-axis and y-axis.  
  
Students will be able to label the x-axis and y-axis.  
  
Students will be able to plot points on a coordinate plane.   
  
Students will be able to label points on a coordinate plane.   
  
Set Induction:  
The teacher will have a coordinate plane up on the SmartBoard. She will explain to the students that the x-axis is the horizontal line and it get labeled like a number line. A student will be asked to come label the x-axis. The teacher will explain that the y-axis is the vertical line and that this is also labeled like number line. A student will be asked to come up and label the y-axis.   
  
Learning Activities:   
Trace the Teacher:   
The teacher will explain where the ordered pairs (2, 4), (-2, 4), (2, -4), and (-2,-4) are located on the coordinate plane and the quadrants in which they are located. The teacher will stand in front of the SmartBoard so her shadow projects onto the screen. She will call on student to plot a point on the SmartBoard along the border of her shadow and write the ordered pair of their dot on the board. They will also need to tell the class what quadrant that point is located in. This will continue until there is an outline of the teacher on the SmartBoard.   
  
Ordered Pairs:  
The students will be assigned the “Ordered Pairs” worksheet and they will be asked to work with a partner to finish it. The class will then go over this worksheet as a whole.

Trace Your Hand:   
The students will draw a coordinate plan on a piece of graph paper and then outline their hand. The students will plot points around the border of their hand and label these points with a letter and ordered pair.

Timeline:  
Set Induction: 5 minutes  
Trace the Teacher: 10 minutes  
Ordered Pairs: 10 minutes  
Trace Your Hand: 15 minutes   
Closure: 5 minutes   
  
Closure:   
The teacher will have each students announce the point at which the tip of their thumb is located and that student will call upon another student to locate that point on the SmartBoard.   
  
Assessment:   
The teacher will observe student work and participation during class.   
  
Homework:  
Friday! =)   
  
Materials:  
SmartBoard  
Pencils  
Paper  
“Ordered Pairs” Worksheet  
Graph Paper